



EUROPEAN PATENT APPLICATION

Application number : **91307523.0**

Int. Cl.⁵ : **H04M 1/72, H04M 11/06,
H04M 1/02**

Date of filing : **14.08.91**

Priority : **20.08.90 FI 904111**

Date of publication of application :
26.02.92 Bulletin 92/09

Designated Contracting States :
DE ES FR GB NL SE

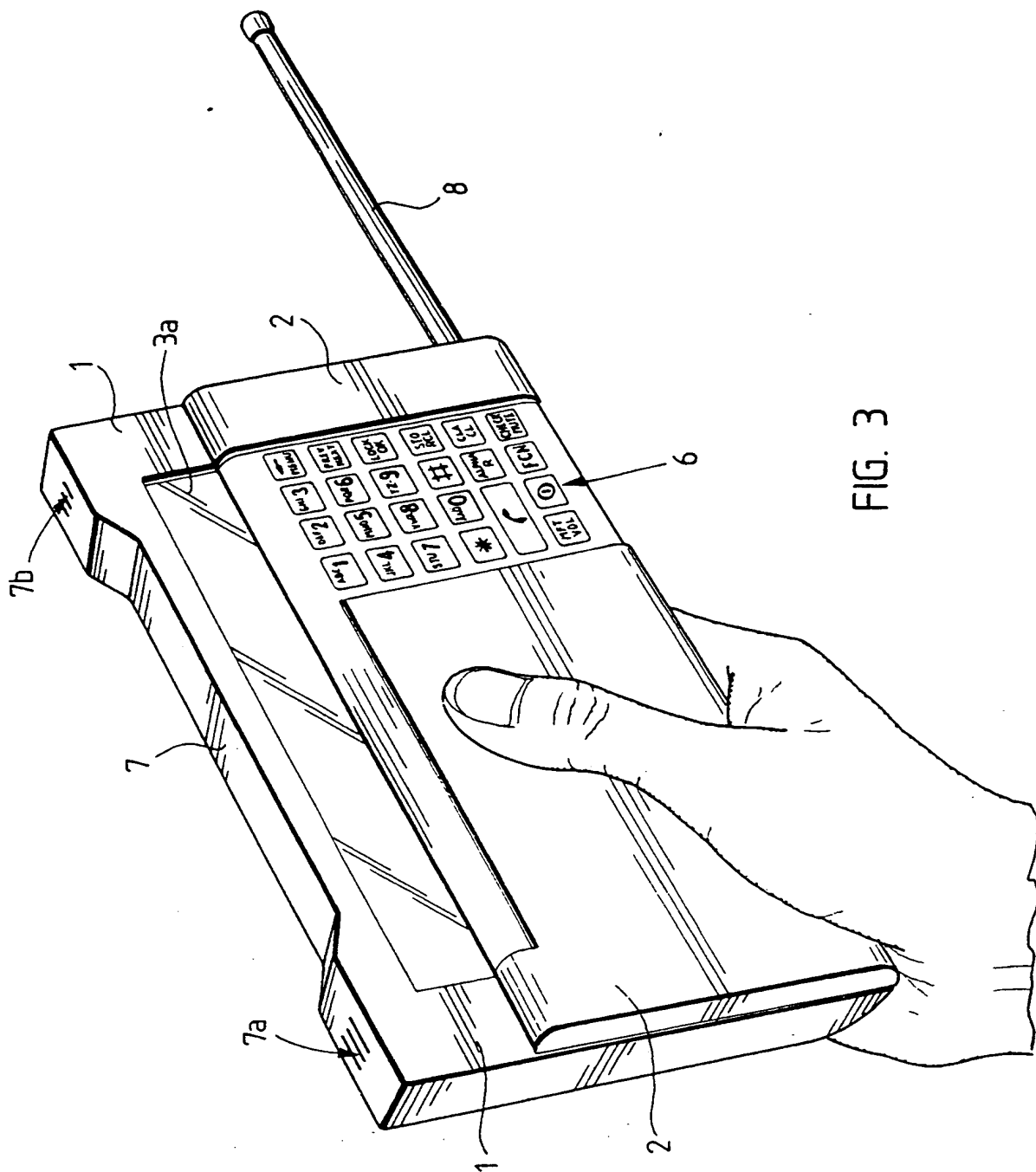
Applicant : **OY NOKIA AB**
P.O. Box 780
SF-00101 Helsinki (FI)

Inventor : **Paajanen, Reijo**
L hdekorvenkatu 7 B 2
SF-23820 Tampere (FI)
Inventor : **Terho, Mikko**
Kierikankatu 8 C 19
SF-33700 Tampere (FI)
Inventor : **Höglund, Tom**
Lehvänkatu 24 G 58
SF-33820 Tampere (FI)

Representative : **Howden, Christopher Andrew**
et al
FORRESTER & BOEHMERT
Widenmayerstrasse 4/I
W-8000 München 22 (DE)

Portable personal workstation.

The invention relates to a portable personal workstation, comprising a portable personal computer and a mobile phone integrated into one and the same body structure provided with a display screen (3) and a keyboard member (2) for operating the computer and the mobile telephone. To improve the convenience of use of such an integrated device, the keyboard member (2) is arranged to be movable between open and closed positions with respect to the rest of the body structure (1) in such a way that in the open position the whole display screen (3) and at least the whole keyboard (4, 5) of the computer are accessible for operating the computer and in the closed position the keyboard member (2) covers a part of the display screen and leaves at least some of the buttons (6) of the mobile telephone and a part of a display unit (3a) accessible for operating the mobile telephone.



The invention relates to a portable personal workstation, comprising a portable personal computer and a mobile telephone integrated into one and the same body structure provided with a display screen and a keyboard member for operating the computer and the mobile phone.

Due to an increasing need of personal data processing and data transmission, portable personal computers and mobile phones have become rapidly general. By means of a combination of a portable microprocessor provided with a modem and a mobile telephone, it is at present possible to attend to data communications practically anywhere. However, a problem has been that for instance the size of a combination device like this and the wires or fittings possibly needed make the operating characteristics of the device unsuitable for portable use.

The object of the present invention is thus to provide such a device with an improved convenience of use. This is achieved by means of a workstation of the type described in the beginning in such a way that the keyboard member is arranged to be movable between open and closed positions with respect to the rest of the body structure, so that in the open position the whole display screen and at least the whole keyboard of the computer are accessible for operating the computer and in the closed position the keyboard member covers a part of the display screen and leaves at least some of the buttons of the mobile telephone and a part of the display unit accessible for operating the mobile telephone.

The basic idea of the invention is to use the same display screen for the mobile telephone and for the computer and to arrange the keyboard member to be movable with respect to the rest of the body structure in such a way that when shifting the keyboard member from computer use to mobile phone use the keyboard member moves partly over the display screen and leaves only the part of it visible which is needed for mobile telephone use and reduces the outer dimensions of the body structure at the same time.

By means of the solution of the invention, the combination device described above can be provided with the smallest possible body structure and with a convenience of use better than before.

In an especially preferable embodiment of the invention, in which the body structure comprises a body member with a display screen and a keyboard member pivoted on the body, which members can be turned against each other to a closed position and opened to an open position, the keyboard member is arranged to be double-sided in such a way that at least a part of the keys of the computer and at least a part of the buttons of the mobile telephone are situated on opposite sides of the keyboard member. In this way it is possible to minimize the outer dimensions of the keyboard member and thus also of the whole body structure and to hide the keyboard of the

computer handily at the same time, the workstation being ready for mobile telephone use.

The invention is explained in the following more accurately with reference to the examples of the enclosed drawing, in which

Figure 1a shows a front view of a workstation ready for mobile phone use,

Figure 1b shows a side view of the workstation ready for mobile phone use,

Figure 2a shows a front view of the workstation when used as a computer,

Figure 2b shows a side view of the workstation when used as a computer, and

Figure 3 shows further a perspective view of the workstation in the user's hand ready for mobile phone use.

The body structure of a portable personal workstation shown in Figures 1 and 2 comprises a body member 1 and a keyboard member 2 pivoted thereon and being substantially of the same length as the body member, but narrower. By turning the keyboard member 2 with respect to the body member 1, the body structure can be opened to an open position according to Figures 2a and 2b, in which the keyboard member and the body member form a specific angle with each other and the workstation is ready for computer use, and closed to a closed position according to Figures 1a and 1b, in which the keyboard member and the body member are placed against each other and the workstation is ready for mobile phone use.

On the inner surface of the body member 1 there is a display screen 3, the line and column numbers of which correspond to those of a normal PC display. An upper part 3a of the display screen is used as a display screen of the mobile phone, when the workstation is in the position for mobile phone use. Consequently, the keyboard member 2 and the body member 1 are then turned against each other according to the Figures 1a and 1b, and the keyboard member, being narrower than the body member, covers the lower part of the display screen and leaves the upper part 3a open for use.

On the inner surface 2a of the keyboard member 2 there is a standard computer keyboard 4, some of the function keys (Esc, ScrL lock, etc., F1 to F12) being arranged on the inner surface of the body member adjacent to the display screen 3 in such a way that also these keys will be covered under the keyboard member 2 in the closed position of the device (cf. Figure 1a). These function keys are indicated by reference numeral 5. On the outer surface 2b of the keyboard member are arranged push buttons 6 of the mobile phone, comprising at least some of the buttons needed for the use of the mobile phone, preferably all actuating buttons of the mobile phone, however. In the mobile phone position of the device, the display screen 3 and the computer keyboard 4 being placed against each other, the computer keyboard and the

most part of the display screen are under cover, the push buttons 6 of the mobile phone and the upper part 3a of the display screen being situated adjacent to each other on the same outer side of the body structure.

For the illustration of the natural size of the device, Figure 3 shows further a perspective view of the workstation of the invention in the user's hand ready for mobile phone use. As appears from the figure, an upper side 7 of the body member is shaped to form a handle part of the mobile phone and the handle part 7a and a microphone 7b are arranged at the opposite ends of this upper side. Another pair of phone handles and microphones 9a, 9b are arranged on the inner surface of the body member 1 adjacent to the display screen 3. By means of these it is possible to carry out a so-called hands free call. An antenna of the mobile phone is indicated by reference numeral 8. A built-in antenna is also possible in some mobile phone systems.

Because the actual inventive idea relates only to the body structure of the device, the location of a PC part known per se and a radio part known per se inside the body structure has not been presented. The PC part is always the same anywhere, but the type of the radio part varies according to what kind of a mobile phone system (NMT, GSM, TACS) is used within respective area. The inner structure of the device can naturally vary in many ways. For a data transmission by radio, the device has a built-in modem. As examples of standard equipments of the workstation of the invention can be mentioned a 80386 or 80486 processor, a VGA graphics display, a hard disk based on fast EEPROM as well as software for data communication.

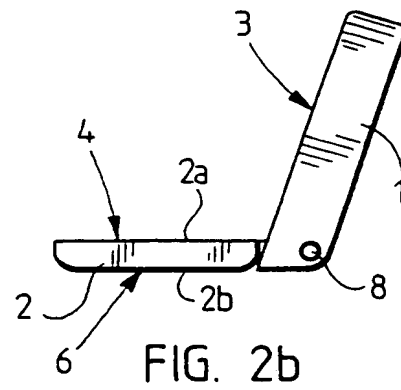
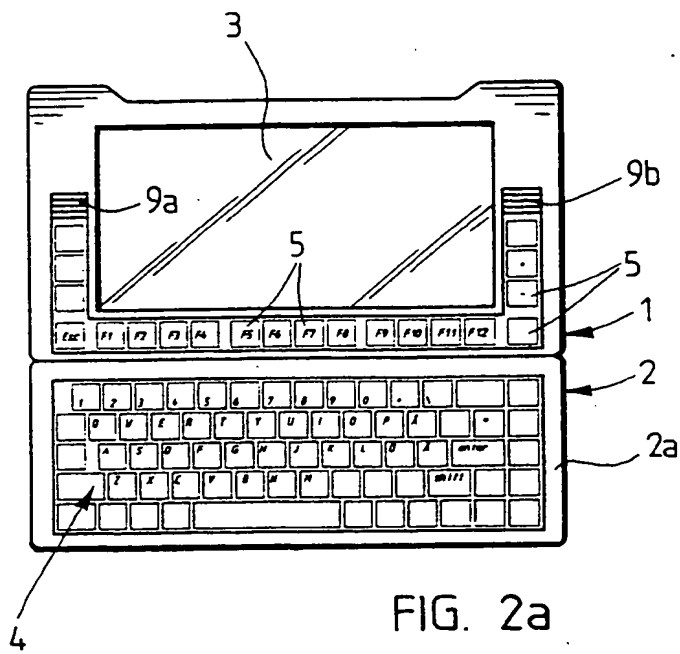
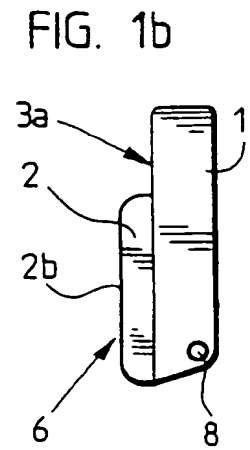
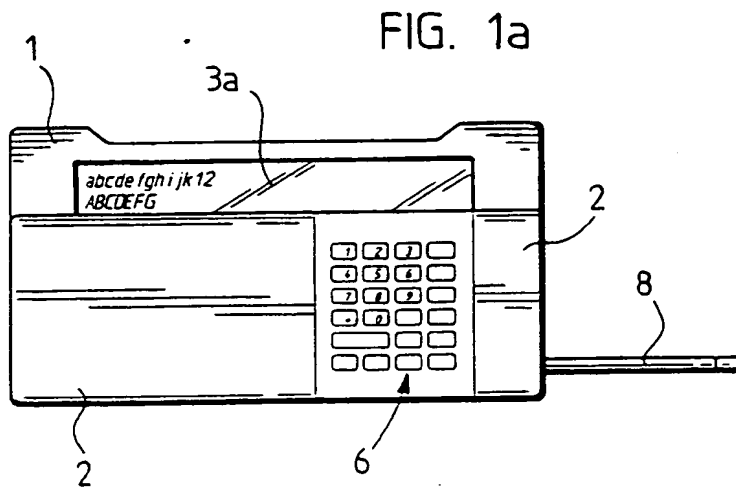
Though the invention has above been explained with reference to the example of the enclosed drawing, it is clear that the invention is not restricted thereto, but it can be varied in many ways within the scope of the inventive idea presented above and in the enclosed claims. For instance, it is not absolutely necessary to make the keyboard member and the rest of the body structure movable with respect to each other expressly by pivoting, but the keyboard member can e.g. be made to slide, so as to slide in the mobile phone position partly over the display screen. The double-sidedness of the keyboard is not absolutely necessary either, but the keys and buttons needed for both operating positions of the workstation can also be situated on the same side of the keyboard member, for instance in such a way that the part of the keyboard not needed at a particular time is covered by a separate protective cover. By means of a double-sided keyboard it is, however, possible to achieve an improved convenience of use due to the smaller outer dimensions. Also other functions can be integrated to the workstation, which can, e.g. in the mobile phone position of Figure 3, also be used as a normal pocket

calculator.

The features disclosed in the foregoing description, in the following claims and/or in the accompanying drawings may, both separately and in any combination thereof, be material for realising the invention in diverse forms thereof.

Claims

1. A portable personal workstation, comprising a portable personal computer and a mobile telephone integrated into one and the same body structure provided with a display screen (3) and a keyboard member (2) for operating the computer and the mobile phone, **characterized** in that the keyboard member (2) is arranged to be movable between open and closed positions with respect to the rest of the body structure (1), so that in the open position the whole display screen (3) and at least the whole keyboard (4, 5) of the computer are accessible for operating the computer and in the closed position the keyboard member (2) covers a part of the display screen and leaves at least some of the buttons (6) of the mobile telephone and a part of a display unit (3a) accessible for operating the mobile telephone.
2. A workstation according to claim 1, in which the body structure comprises a body member 1 with a display screen (3) and a keyboard member 2 pivoted on the body, which members can be turned against each other to a closed position and opened to an open position, whereby they form a specific angle with each other, **characterized** in that the keyboard member (2) is arranged to be double-sided in such a way that at least some of the keys (4) of the computer and at least some of the buttons (6) of the mobile telephone are situated on opposite sides of the keyboard member (2).
3. A computer according to claim 1 or 2, **characterized** in that in the closed position of the keyboard member (2) the whole keyboard (4, 5) of the computer remains under cover.



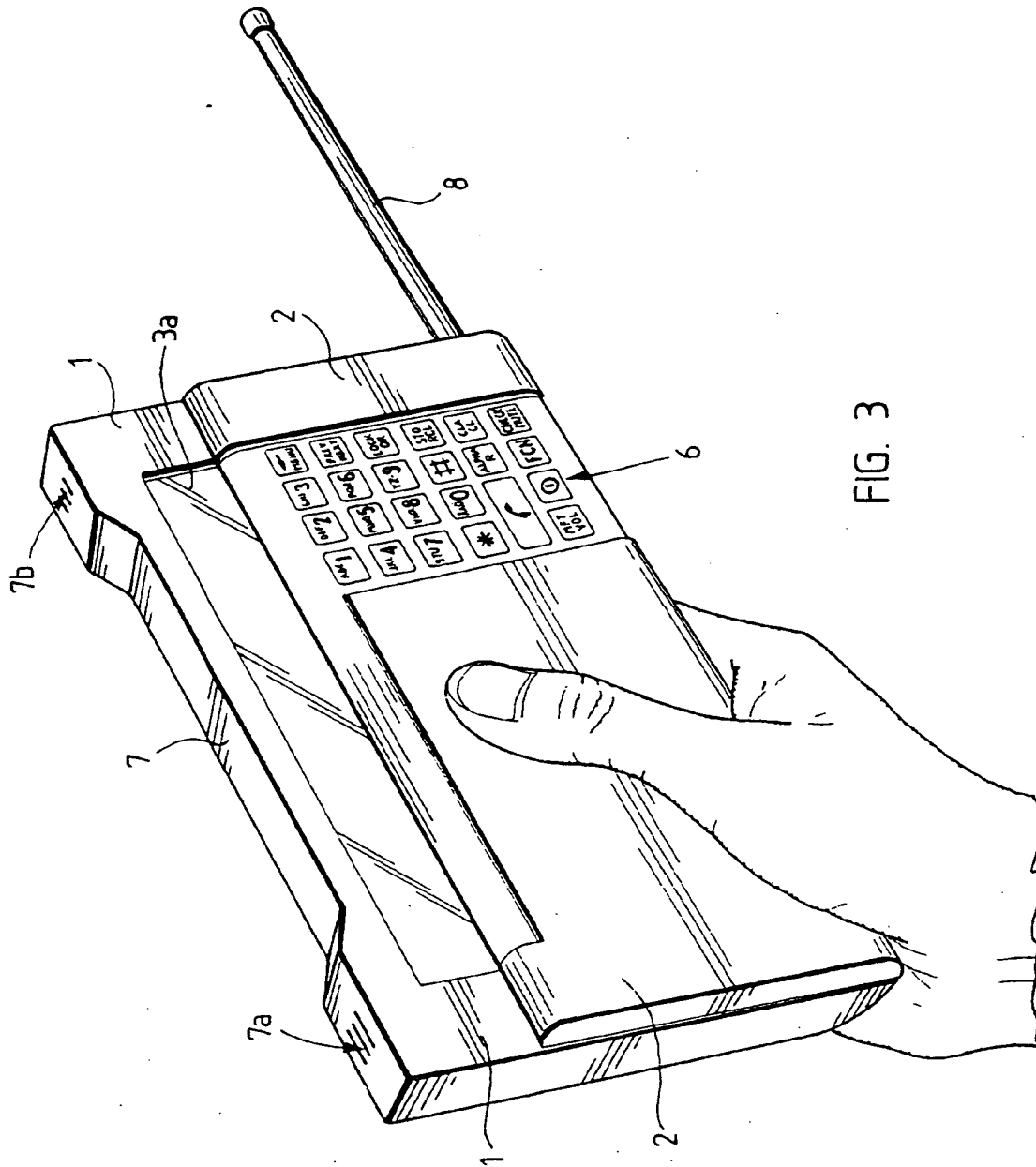


FIG. 3